IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

CUSTOMER NO. 22927

Appellants:	Jay S. Walker, Andrew S. Van Luchene, Magdalena Mik Fincham, and Daniel E. Tedesco
Application No.:	09/350,875
Filed:	July 09, 1999
Title:	MULTI-TIER PRICING OF INDIVIDUAL PRODUCTS BASED ON VOLUME DISCOUNTS

Attorney Docket No.   98-113

Group Art Unit: 3627

Examiner: Gerald J. O'Connor

REPLY BRIEF

Appellants hereby reply to the Examiner's Answer mailed September 23, 2004 (Paper No. 20040916).

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Appellant respectfully addresses the following issues which were raised by the Examiner's Answer.

I.   The Examiner's Assertions Regarding Claims 1, 5 and 70 Being Directed to Non-Statutory Subject Matter

Basis 1: lack of useful, concrete and tangible result

The Examiner has maintained his position that one of the reasons claims **1, 5, and 70** are directed to non-statutory subject matter is that the claims do not produce a useful, concrete and tangible result. The Examiner has supported this basis of rejection with the following reasoning

> "the method of claims 1, 5, and 70 produces no tangible result, as it does not require displaying or physically outputting any result of the calculation it performs. Therefore, it has no tangible effect on the world...If appellants' method were performed on a computer, and then another method were performed on the same computer, and the other method was simply to generate an endless string of useless random numbers, there would be no perceptible difference to any observer of the experiment. Therefore, appellant's claimed method utterly fails to effect any *tangible* result." Examiner's Answer, page 6, emphasis in original.

As Appellants have previously argued, this position is contrary to law. In maintaining the above reasoning for the §101 rejection, the Examiner has utterly failed to respond to Appellant' arguments regarding the impropriety of this reasoning. As Appellants argued during prosecution and in the Supplemental

Appeal Brief, it is sufficient that the claim recites *calculating a reduced purchase total for the transaction*, as such is a useful, concrete and tangible result. As Appellants also explicitly argued during prosecution and in the Supplemental Appeal Brief, the Examiner's position is contrary to Federal Circuit case law. For example:

- the Federal Circuit has held that a claim which merely recited "calculating a final share price" (and which claim did not recite any further uses for the final share price) was directed to statutory subject matter. State Street Bank & Trust Co. v. Signature Fin. Group, Inc., 149 F.3d 1368, 1375, 47 USPQ2d 1596, 1602 (Fed. Cir. 1998), cert. denied, 525 U.S. 1093, 142 L.Ed.2d 704, 119 S.Ct. 851 (1999) ("For purpose of our analysis, as noted above, claim 1 is directed to a machine programmed with the Hub and Spoke software and admittedly produces a 'useful, concrete, and tangible result.'...This renders it statutory subject matter, even if the useful result is expressed in numbers, such as price, profit, percentage, cost, or loss.").

- The Federal Circuit has also held that a claim which recited "generating a message record" (and which claim did not recite any further uses of the message record) was directed to statutory subject matter. AT & T Corp. v. Excel Communications, Inc., 172 F.3d 1352, 1355, 50 USPQ2d 1447, 1449 (Fed. Cir. 1999). In that case, the Federal Circuit held that all

that is required is that "a number [have] a specific meaning – a useful, concrete, tangible result – not a mathematical abstraction" for a process claim to satisfy §101. AT & T Corp., 172 F.3d at 1357, (citing Arrhythmia, 958 F.2d at 1060).

As argued during prosecution and in the Supplemental Appeal Brief, claims **1, 5 and 70** recite calculating a reduced purchase total, which is a number that has a specific meaning (see, e.g., Section 1.2, page 13, of the Supplemental Appeal Brief) and is thus not a mathematical abstraction.

In summary, the Examiner's reasoning is contrary to law and the Examiner has maintained the reasoning without even attempting to respond to Appellants' arguments regarding this issue. For example, the Examiner has failed to provide any reasoning as to how the claim approved by the Federal Circuit in State Street Bank (which merely recited "calculating a final share price") would pass muster under the Examiner's reasoning. To use the Examiner's proposed example, an observer of the computer of the State Street Bank claim would also not be able to perceive a difference if the computer were performing the State Street Bank method of calculating a final share price or if the computer were merely generating "an endless string of useless random numbers". Yet the Federal Circuit held that such a claim did indeed produce a useful, concrete and tangible result.

Basis 2: Claims Don't Require Performance by a Machine

The Examiner has further maintained the rejection of claims **1, 5 and 70** on the basis that the claims "do not even expressly or implicitly *require* performance by a machine." Examiner's Answer, page 7, emphasis in original.

The Examiner has set forth three possible tests for statutory subject matter, previously not relied upon by the Examiner. Examiner's Answer, bottom of page 7 through top of page 8. Accordingly, the Examiner has introduced a new ground of rejection with respect to statutory subject matter. Further, the Examiner appears to have created a separate category of claims ("non-machine implemented process claims") to which these three tests apply.

It is not clear to Appellants whether the Examiner is asserting that a claim must pass all three tests or one of the three tests. Regardless, the Examiner's position is untenable since there is no statutory, regulatory, or case law basis for the Examiner's proposal. As discussed at length in the Supplemental Appeal Brief, there is currently only one test for whether a claim is directed to statutory subject matter. That test is simply whether the claims produce a useful, concrete and tangible result. State Street Bank, 149 F.3d 1368, 1375, 47 USPQ2d 1596, 1602 (Fed. Cir. 1998).

Despite the fact that the tests proposed by the Examiner are contrary to law, Appellants briefly respond below to each:

Test 1: requirement of a physical transformation of physical subject matter, tangible or intangible, to a different state or thing. Specifically, the Examiner has asserted that, in order for a process claim to be directed to statutory subject matter, "there *must* be some transformation of physical subject matter from one state to another." Examiner's Answer, page 8, emphasis in original.

This test has been explicitly rejected by the Federal Circuit as a requirement under §101. A physical transformation by a claimed process is one example (but not a requirement) of how a mathematical algorithm may bring about a useful application. AT & T Corp., 172 F.3d at 1357. See also, Diamond v. Diehr, 450 U.S. 175, 192, 67 L.Ed.2d 155, 169, 101 S.Ct. 1048, 1059 – 60 (1981) (the "e.g."

signal denotes that physical transformation is an example, not an exclusive requirement for satisfying §101); Arrhythmia Research Tech., 958 F.2d 1053, 1060, 22 USPQ2d 1033, 1039 (Fed. Cir. 1992) (the transformation simply confirmed that Arrhythmia's method claims satisfied §101 because the method produced a number which had specific meaning – a useful, concrete, tangible result – not a mathematical abstraction).

Test 2: the "abstract idea" exception.

As discussed above, the Federal Circuit has previously held that, for a claim directed to a method for calculating a number, all that is required is that "a number [have] a specific meaning – a useful, concrete, tangible result – not a mathematical abstraction", that process claim satisfies §101. AT & T Corp., 172 F.3d at 1357, (citing Arrhythmia, 958 F.2d at 1060).

Test 3: "Useful, concrete and tangible result" test of State Street

As discussed above and at length in the Supplemental Appeal Brief, claims **1, 5 and 70** do produce a useful, concrete and tangible result that satisfy the State Street test.

Further, despite the Examiner's asserted concerns to the contrary, the Federal Circuit did not limit this holding to machine implemented process claims or even hint that the test would not apply to non-machine implemented process claims, even when invited to do so during AT & T Corp., as discussed in detail below.

<u>The Examiner's proposed tests are an attempt to invoke positions previously</u>
<u>presented to, and explicitly rejected by, the Federal Circuit.</u>

The Federal Circuit has, after <u>State Street</u>, been presented with the argument
that the "useful, concrete and tangible result" test should be limited to machine
implemented claims and that non-machine implemented processes should pass a
"physical transformation" or "abstract idea" test instead. Specifically, the
Appellees in <u>AT & T Corp.</u>, in attempting to convince the Federal Circuit that the
claims were directed to non-statutory subject matter, presented the following
arguments:

"This abstract concept is not applied to or limited by any
physical elements or physical process steps."

"Unlike the means-plus-function claims in *State Street Bank*,
which expressly covered a machine defined by specific
structures disclosed in the written description for performing a
practical function, the mathematical algorithm embodied in the
method of the asserted claims remains an abstract construct that
is unrestricted by the structural elements disclosed elsewhere in
the patent."

"There is nothing physical about what the method claimed in
the '184 patent does...The claimed method does not physically
transform the data, is not part of an overall physical process,
does not manipulate physical signals, and is not defined by
structural elements."

"The mathematical operation embodied in the claims remains

detached from any physical activity or object. When viewed as

a whole, the claimed method of generating a message record

including a PIC indicator involves nothing more than

abstractions resulting from the manipulation of data in the

nature of a mathematical algorithm."

All of the above quotes are from AT & T Corp., Appellee's Brief, Summary
of Arguments Section, pages 14 – 15. Appellants have herewith submitted a copy
of this Apellee's Brief, so that the above quoted passages may be read in context.
Appellants note that this Brief is being submitted as support for Appellants'
arguments countering the new grounds of rejection provided by the Examiner in
the Examiner's Answer. Appellants further note that AT & T is a case that was
extensively cited in the Appellants' Supplemental Appeal Brief, and thus this brief
does not constitute new evidence, much less new evidence that is not required by
the new grounds of rejection presented for the first time in the Examiner's
Answer.

After entertaining the Appellee's above arguments in AT & T Corp., the
Federal Circuit responded as follows:

"In both Alappat and State Street, the claim was for a machine

that achieved certain results. In the case before us, because

Excel does not own or operate the facilities over which its calls

are placed, AT&T did not charge Excel with infringement of its

apparatus claims, but limited its infringement charge to the

specified method or process claims. *Whether stated implicitly*

or explicitly, we consider the scope of § 101 to be the same regardless of the form - machine or process - in which a particular claim is drafted." (emphasis added)

"For the purposes of a § 101 analysis, it is of little relevance whether claim 1 is directed to a 'machine' or a 'process,' . . . . Furthermore, the Supreme Court's decisions in Diehr, Benson, and Flook, all of which involved method (i.e., process) claims, have provided and supported the principles which we apply to both machine- and process-type claims. Thus, we are comfortable in applying our reasoning in Alappat and State Street to the method claims at issue in this case." (internal quotations omitted).

"In this case, Excel argues, correctly, that the PIC indicator value is derived using a simple mathematical principle (p and q). But that is not determinative because AT&T does not claim the Boolean principle as such or attempt to forestall its use in any other application. It is clear from the written description of the '184 patent that AT&T is only claiming a process that uses the Boolean principle in order to determine the value of the PIC indicator. The PIC indicator represents information about the call recipient's PIC, a useful, non-abstract result that facilitates differential billing of long-distance calls made by an IXC's subscriber. Because the claimed process applies the Boolean principle to produce a useful, concrete, tangible result without pre-empting other uses of the mathematical principle, on its

face the claimed process comfortably falls within the scope of §
101."

"Excel argues that method claims containing mathematical
algorithms are patentable subject matter only if there is a
'physical transformation' or conversion of subject matter from
one state into another. The physical transformation language
appears in Diehr, see 450 U.S. at 184 ('That respondents'
claims involve the transformation of an article, in this case raw,
uncured synthetic rubber, into a different state or thing cannot
be disputed.'), and has been echoed by this court in Schrader,
22 F.3d at 294, 30 U.S.P.Q.2D (BNA) at 1458 ('Therefore, we
do not find in the claim any kind of data transformation.'). The
notion of "physical transformation" can be misunderstood. In
the first place, *it is not an invariable requirement, but merely
one example* of how a mathematical algorithm may bring about
a useful application. As the Supreme Court itself noted, 'when
[a claimed invention] is performing a function which the patent
laws were designed to protect (**e.g.**, transforming or reducing
an article to a different state or thing), then the claim satisfies
the requirements of § 101.' Diehr, 450 U.S. at 192 (emphasis
added). The 'e.g.' signal denotes an example, not an exclusive
requirement." (emphasis added).

"Excel also contends that because the process claims at issue
lack physical limitations set forth in the patent, the claims are
not patentable subject matter. This argument reflects a

misunderstanding of our case law. The cases cited by Excel for this proposition involved machine claims written in means-plus-function language. See, e.g., State Street, 149 F.3d at 1371, 47 U.S.P.Q.2D (BNA) at 1599; Alappat, 33 F.3d at 1541, 31 U.S.P.Q.2D (BNA) at 1554-55. Apparatus claims written in this manner require supporting structure in the written description that corresponds to the claimed "means" elements. See 35 U.S.C. § 112, para. 6 (1994). Since the claims at issue in this case are directed to a process in the first instance, a structural inquiry is unnecessary."

"The argument that physical limitations are necessary may also stem from the second part of the Freeman-Walter-Abele test, an earlier test which has been used to identify claims thought to involve unpatentable mathematical algorithms. That second part was said to inquire 'whether the claim is directed to a mathematical algorithm that is not applied to or limited by physical elements.' Arrhythmia, 958 F.2d at 1058, 22 U.S.P.Q.2D (BNA) at 1037. Although our en banc Alappat decision called this test 'not an improper analysis,' we then pointed out that 'the ultimate issue always has been whether the claim as a whole is drawn to statutory subject matter.' 33 F.3d at 1543 n.21, 31 U.S.P.Q.2D (BNA) at 1557. Furthermore, our recent State Street decision questioned the continuing viability of the Freeman-Walter-Abele test, noting that, 'after Diehr and Chakrabarty, the Freeman-Walter-Abele test has little, if any, applicability to determining the presence of statutory subject

matter.' 149 F.3d at 1374, 47 U.S.P.Q.2D (BNA) at 1601.

Whatever may be left of the earlier test, if anything, this type of
physical limitations analysis seems of little value because 'after
Diehr and Alappat, the mere fact that a claimed invention
involves inputting numbers, calculating numbers, outputting
numbers, and storing numbers, in and of itself, would not
render it nonstatutory subject matter, unless, of course, its
operation does not produce a 'useful, concrete and tangible
result.' Id. at 1374, 47 U.S.P.Q.2D (BNA) at 1602 (quoting
Alappat, 33 F.3d at 1544, 31 U.S.P.Q.2D (BNA) at 1557)."

Appellants have quoted extensively from the AT & T Corp. decision
simplyto explicitly illustrate that the Federal Circuit has previously considered *and*
explicitly rejected the general tests proposed by the Examiner. As is undeniable
from the above quotes, the Federal Circuit determined that the claims at issue in
AT & T Corp. did not include any physical structure or limitations described in the
specification, did not necessarily require any physical transformation, and yet were
directed to statutory subject matter because they produced a useful, concrete and
tangible result. Further, the Federal Circuit so held the claims to produce a useful,
concrete and tangible result despite the fact that the claims did not recite any
"post-solution" activity, such as displaying or storing the message record. Thus,
the Examiner's position with respect to Section 101 is clearly contrary to law.

II.   The Examiner's Assertions Regarding the Prior Art Rejections Under §102

The Examiner's Answer contains several erroneous factual assertions regarding the claimed invention.

At page 12, Section II, of the Examiner's Answer, the Examiner asserts the following:

"Appellants' invention, as disclosed in the specification (see, in particular, the abstract, background of the invention, and the summary of the invention), is characterized as being a 'point of sale system or other computer system' (e.g., abstract, line 2)."

"Appellants' disclosure represents the inventive step achieved by appellant to be producing the combination of exising, known methods of calculating discounts and purchase totals for known sales channels (e.g., retail stores, websites, etc.) with a point-of-sale terminal or other computer (i.e., computerizing the known method)."

Both of the above assertions are factually erroneous due to being incomplete and unsupported readings of Appellant's disclosure. Nowhere in the specification or anywhere else in the record have Appellants ever characterized the present invention as having an inventive step of producing the combination of an existing, known method with a point of sale terminal. Quite to the contrary – Appellants have vigorously maintained the position that the claimed method is a method not disclosed or suggested by any of the references of record, alone or in combination,

because the references of record fail to teach or suggest the claimed combination of steps. See, for example, Sections 1.3.1, 2.3.1 and 3.3.1 of the Supplemental Appeal Brief. The abstract, line 2 passage that the Examiner refers to recites that the present invention is directed to a point of sale system or other computer system for performing a particular method according to one or more embodiments of the present invention, not to computerizing or otherwise automating a known method. Thus, at most the Appellants have described a method for calculating a reduced purchase total that is not anticipated or rendered obvious by prior art and additionally described that the method may be performed by a point of sale terminal or other computer.

Rejection over "Admitted Prior Art"

The Examiner maintains that because Appellants admitted that "the prior art systems include those that, 'offer a discount on a few selected products'", Applicants claimed method is anticipated. Examiner's Answer, page 13. The Examiner has thus still utterly failed to address all of the limitations of the claim, merely addressing a portion of one limitation of the claim. The claimed embodiments recite that the reduced purchase total that is calculated such that a percentage difference in prices for a first product is different than a percentage difference in prices for a second product is performed *if an initial purchase total is at least equal to a predetermined threshold purchase total.* The Examiner has completely failed to address this claim limitation, much less shown where in the prior art this claim limitation is disclosed. See Section 1.3.1, pages 16 – 17 for a more detailed argument as to why the Admitted Prior Art fails to anticipate claims 1, 5 and 70. The Examiner has utterly failed to address any of the arguments presented by Appellants regarding this rejection.

Further, regarding the Examiner's example of offering a discount on a few selected products, Appellants note that such a practice further does not anticipate the embodiments of claims 1, 5 and 70 because such a practice does not include a step of calculating a reduced purchase total for the transaction *based on respective second prices for each of the products to be purchased.* This is because if a discount is only offered on a few selected products, no second price is available for the products for which a discount is not offered. Thus, a reduced purchase total cannot be calculated based on respective second price for each of the products to be purchased, since second price are only available for the discounted products. The Examiner has not provided any evidence or reasoning in the record as to how or why second prices would be available for the non-discounted products.

Rejection over Dlugos

The Examiner has maintained that claims **1, 5 and 70** are anticipated by Dlugos. Examiner's Answer, page 14. Specifically, with regard to Appellants' argument that Dlugos fails to disclose the limitation that the percentage differences between a first product in a transaction and a second product in the same transaction are different, the Examiner has maintained this rejection based on column 4, lines 25 – 27 of Dlugos. However, this passage of Dlugos merely describes that "multiple discount levels may be provided and selected." Appellants addressed this passage of Dlugos in the Supplemental Appeal Brief, page 18. In summary, Appellants described in detail how Dlugos makes clear that the multiple discount levels are all cumulatively applied to a single transaction. There is absolutely no description, much less enablement, in Dlugos for applying different discount levels to different packages in the same transaction. The Examiner has utterly failed to even address, much less respond to, this argument.

Rejection over Schultz '

The Examiner has maintained the position that claims **1, 5 and 70** are anticipated by Schultz. Examiner's Answer, page 16. The Examiner has maintained this rejection for the same reasons provided during prosecution and has not addressed any of the arguments provided by Appellants in the Supplemental Appeal Brief. See, for example, pages 19 – 22 of the Supplemental Appeal Brief.

Group III – Arguments over prior art completely unaddressed

The Examiner has utterly failed to even address Appellants' argument that none of the references of record disclose the following claimed feature *selecting a predetermined threshold purchase total based on purchasing history data associated with a customer that is associated with the transaction*. Thus, the Examiner has utterly failed to address the prior art arguments for the claim of Group III (claim **70**).

III.   The Examiner's position includes a confusing inconsistency

The Examiner maintains the position that the pending claims are anticipated by various references because, allegedly, the steps of the pending claims are disclosed by the references. Examiner's Answer, Section II, pages 12 – 17.

However, in Section III of the Examiner's Answer, the Examiner states "any amendment of sufficient substance to overcome the rejection of the claims as directed to non-statutory subject matter would likely succeed in overcoming the prior art rejections of the claims as anticipated by the admitted prior art as well..." Examiner's Answer, page 17. From the Examiner's reasoning for the Section 101 rejection, it appears to Appellants that an amendment to the claims that would require the method to be performed by a computer or other device would be

sufficient to overcome the Section 101 rejection. Appellants are confused as to how such an amendment would overcome an anticipation rejection that is predicated on the assertion that prior art discloses the steps as currently claimed.

III.   The Examiner's Conclusion Includes Erroneous Factual Assertions

The Examiner asserts that "many of the arguments provided by appellant in the very length appeal brief are extraneous/spurious arguments that have no actual bearing on the merits of appellant's case. For example, 'advantages of the invention' and 'change in policy'. These arguments fail to point out any supposed or alleged error in the actual rejections of these claims…" Examiner's Answer, page 17.

The Examiner is incorrect in asserting that the "Advantages of the Invention" section are "extraneous/spurious" or "have no actual bearing on the merits of the appellant's case". The "Advantages of the Invention" sections, for example, were relied upon by Appellants to illustrate that the claims produce a useful, concrete and tangible result and are thus relevant to the merits of the Section 101 rejection. Further, it is well settled that statements of advantages of an invention may be relevant in determining the merits of an obviousness rejections. See, for example, Resonate, Inc. v. Alteon Websystems, Inc., 338 F.3d 1360; 67 U.S.P.Q.2D (BNA) 1771 (Fed. Cir. 2003) and CFMT, Inc. v. Yieldup International Corp., 349 F.3d 1333; 68 U.S.P.Q.2D (BNA) 1940 (Fed. Cir. 2003) for just two examples of cases in which the Federal Circuit considered statements of advantages of the invention in determining claim construction and obviousness. As Appellants argued that the pending claims would not be obvious over the prior art of record, a statement of advantages of the invention is relevant to the merits of Appellants' arguments.

The Examiner is similarly incorrect in asserting that the "change in policy" section is "extraneous/spurious" or "have no actual bearing on the merits of the appellant's case". As argued (and supported by case law) in the Supplemental Appeal Brief (e.g., Section 1.6.5, pages 35 – 37), the PTO is an Agency subject to the requirements of the Administrative Procedure Act (APA). Under the APA, an agency decision may be set aside as "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with the law" if it departs from agency precedent without reasoned explanation. Thus, if Appellants' argument is found persuasive, the Examiner's Section 101 rejection may be set aside. Appellants fail to see how such an argument has "no actual bearing on the merits of the appellants' case."
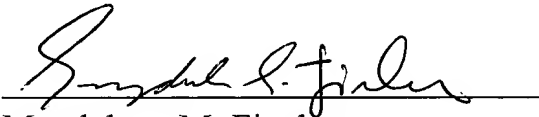
CONCLUSION

Appellants respectfully request that the Examiner's rejections be reversed for the reasons specified in this Reply Brief and in the Supplemental Appeal Brief.

If any issues remain, or if there are any further suggestions for expediting allowance of the present application, please contact Magdalena M. Fincham using the information provided below.

Appellants hereby request any extension of time that may be required to make this Reply Brief timely. Please charge any fees that may be required for this paper, or credit any overpayment, to Deposit Account No. 50-0271.

Respectfully submitted,

November 22, 2004
Date

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BRIEF FOR DEFENDANTS-APPELLEES
EXCEL COMMUNICATIONS, INC.,
EXCEL COMMUNICATIONS MARKETING, INC.,
AND EXCEL TELECOMMUNICATIONS, INC.

IN THE

UNITED STATES COURT OF APPEALS

FOR THE FEDERAL CIRCUIT

98-1338

AT&T CORP.,

Plaintiff-Appellant,

EXCEL COMMUNICATIONS, INC.,
EXCEL COMMUNICATIONS MARKETING, INC.
and EXCEL TELECOMMUNICATIONS, INC.,

Defendants-Appellees.

Appeal from the United States District Court
for the District of Delaware in 96-CV-434,
Judge Sue L. Robinson.

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CERTIFICATE OF INTEREST

Counsel for the Defendants-Appellees, Excel Communications, Inc., Excel Communications Marketing, Inc., and Excel Telecommunications, Inc., certifies the following under Fed. R. App. P. 26.1, and Fed. Cir. R. 26.1 and 47.4:

1. The full names of the parties represented by us are:

    Excel Communications, Inc.
    Excel Communications Marketing, Inc.
    Excel Telecommunications, Inc.

2. The parties represented are the real parties in interest.

3. Excel Communications, Inc. wholly owns Excel Communications Marketing, Inc. and Excel Telecommunications, Inc. Excel Communications, Inc. also wholly owns Telco Communications Group, Inc., which had publicly-held stock or debt instruments. Excel Communications, Inc. has signed a definitive merger agreement with Teleglobe Inc., which has publicly-held stock or debt instruments.

4. The names of all law firms and the partners or associates that appeared for the parties now represented by me in the trial court or are expected to appear in this court are:

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STATEMENT OF RELATED CASES

There is no case known to counsel to be pending in this or any other court that will directly affect or be directly affected by this Court's decision in the pending action.

COUNTERSTATEMENT OF THE ISSUES

Did the district court correctly enter summary judgment of invalidity because the asserted claims of U.S. Patent No. 5,333,184 (the '184 patent), which cover no more than an abstract method of manipulating data according to a mathematical operation, are drawn to subject matter not entitled to patent protection under 35 U.S.C. § 101 as a matter of law?

COUNTERSTATEMENT OF THE CASE

I.   Preliminary Statement

In this litigation, AT&T asserts ten of the '184 patent's 41 claims against Excel, *viz.*, claims 1, 4, 6, 12, 13, 15, 18, 19, 21, and 40. The decision to enforce these particular claims against Excel reflects AT&T's apparent recognition of the unique nature of Excel's business activities and the limits of the '184 patent. As a long-distance "reseller," Excel does not own or operate any facilities for carrying long-distance calls. Rather, Excel contracts with facilities-based carriers such as MCI to carry Excel's customers' calls. Because Excel does not own or operate any long-distance facilities, AT&T could not charge Excel with infringing the patent's apparatus claims, such as claim 30. Indeed, none of the patent's apparatus claims are at issue in this litigation.

By contrast, the asserted claims were drafted without restrictive physical limitations and represent the broadest claims of the '184 patent. But in attempting to secure expansive patent coverage through these claims, AT&T crossed the line between what is and what is not patentable under the law. By excluding from the asserted claims the type of physical limitations found in other claims of the patent, AT&T essentially reduced the claimed invention to an intangible method of generating data according to a mathematical operation.

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Contrary to AT&T's assertions, the claimed invention bears none of the hallmarks of a statutory process recognized by this Court and the Supreme Court. There is nothing physical about this piece of data or the steps for generating it. The claimed method does not physically transform or reduce an article into a different state or thing, does not manipulate signals representative of a physical object or phenomenon, is not part of an overall physical process, and is not performed by a specific apparatus or machine. Thus, in essence, the asserted claims wholly encompass a mathematical algorithm in the abstract.

The judgment of invalidity entered by the district court was one mandated by the statute and controlling decisional authority. The outcome below would not have been any different had the parties or the district court considered this Court's most recent decision relating to section 101, *State Street Bank & Trust Co. v. Signature Financial Group, Inc.,* No. 96-1327 (Fed. Cir. July 23, 1998). The *State Street Bank* decision, to the extent that it has any application to the claimed method at issue in this appeal, must be read to be consistent with the long line of Supreme Court and Federal Circuit precedent prohibiting a party from patenting an abstract idea. As the district court correctly held, AT&T's claims are no exception to this well-established rule.

AT&T cannot now attempt to reign in the scope of its claims for purposes of section 101 by referring to physical limitations that appear only in the specification, if at all. The asserted claims do not cover, as AT&T implies, the nationwide long-distance or "interexchange" telecommunications system, or any part thereof, that has been in place and used by millions in this country for decades. Rather, the claims, as written, are drawn simply to a method of generating a piece of data by comparing other data according to a mathematical operation. And as such, they are not entitled to protection under the patent law.

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It is abundantly clear how AT&T resolved the tension between drafting its claims as broadly as possible and limiting the claims' breadth to maintain their validity—it chose the former by stripping the asserted claims of restrictive physical limitations. The consequence of that decision, however, is embodied in the district court's judgment that the asserted claims are invalid under section 101 as a matter of law. For the reasons set forth below, the district court's judgment is legally correct, and should be affirmed by this Court.

II.   Nature of the Case and Course of Proceedings

On August 30, 1996, AT&T filed suit in the U.S. District Court for the District of Delaware, charging Excel Communications, Inc., Excel Communications Marketing, Inc., and Excel Telecommunications, Inc. (collectively "Excel") with infringing the '184 patent. JA 48-50. In its answer, Excel denied liability and counterclaimed for a declaration that the asserted claims of the '184 patent are invalid and not infringed by Excel. JA 65-69.

Excel moved for summary judgment of invalidity under section 101 on December 5, 1997. JA 38, 139. The parties completed briefing in connection with the motion by the end of January 1998, and an oral hearing was held on March 16, 1998. JA 42, 46.

The district court (Robinson, J.) issued an order on March 27, 1998, granting Excel's motion for summary judgment of invalidity under section 101. JA 2. AT&T appealed.

III.   Counterstatement of the Facts

A.   The Claimed Invention

The asserted claims of the '184 patent are generally directed to a method of including a piece of data, referred to as a "primary interexchange carrier (PIC) indicator," in a record of a long-distance call. This piece of data indicates whether the originating and terminating subscribers are "PIC'd" to the same long-distance carrier as their primary long-distance carrier, or alternatively, whether the terminating subscriber is PIC'd to a particular predetermined long-distance carrier.[1] If either of those conditions is true, the PIC indicator is "set" in a data record.

AT&T did not invent the concept of a PIC (JA 341-42), and certainly was not the first to use PIC information in records of long-distance calls. For example, MCI's well-known "Friends and Family"™ calling plan was available to the public well before the filing date of the application that issued as the '184 patent. JA 283-89. Under this plan, customers PIC'd to MCI for long-distance service received discounts on long-distance calls to other customers who were also PIC'd to MCI,

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[1] According to the patent specification, each subscriber to a local telephone service is "PIC'd" to a long-distance carrier over whose facilities the subscriber's long-distance calls are carried. JA 59 (col. 1, lines 35-44). AT&T incorrectly states, without citation, that the PIC indicator "is a physical representation of whether, for a particular long-distance call, the called party has selected a predetermined long-distance company as his or her primary interexchange carrier." AT&T Br. at 2. For purposes of the '184 patent, a "subscriber" is not a person, but a telephone line. *E.g.* JA 60 (col. 3, line 17) (referencing "subscriber 51" of Figure 1 (JA 54), which is a telephone line). Indeed, from the viewpoint of the long-distance carrier, it makes no difference *who* answers a phone, but whether the *phone* receiving a call is answered.

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particularly those listed as members of a caller's "calling circle." *Id.* For each of

these calls, MCI generated a message record of the call and included in the record an

indicator denoting whether or not the call was made to a number PIC'd to MCI. JA

293-95.

1.   The Intended Environment of the Invention

According to the preamble of the claims of the '184 patent, the claimed

method is intended "for use in a telecommunications system." As AT&T itself

admits, this preamble language merely specifies an intended purpose or field of use

for the invention, and does not limit the scope of the claims:

> For example, the preamble of Claim 1 also states that the invention
> is "a method for use in a telecommunications system in which
> interexchange calls are . . . routed over . . . facilities." This portion of
> the preamble only indicates that the invention relates to long distance
> calls and provides no further limitation. All long distance calls are
> placed "in a telecommunications system" and are routed "over
> facilities." This part of the preamble . . . does not define the claimed
> inventions. It merely provides the environment in which the claimed
> inventions are practiced -- long distance telephone service.

JA 298 (AT&T's Answering Brief on Claim Construction).

Figure 1 of the '184 patent provides a simplified depiction of a telephone

network capable of carrying long-distance calls. Specifically, the preferred network

consists of three major components: (1) telephone 11, which is the originating or

calling subscriber, and telephone 51, which is the terminating or called subscriber;

(2) local phone companies (also known as local exchange carriers) 20 and 40 directly

connected to phones 11 and 51, respectively; and (3) long-distance or interexchange

carrier 30, located between the local exchange carriers 20 and 40.

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The following example illustrates how these components interact to connect a long-distance call under the so-called "equal access" scheme.[2] With reference to Figure 1, a subscriber in Washington, D.C. initiates a long-distance call from telephone 11, which is PIC'd to MCI, by dialing the number of telephone 51 in Atlanta, Georgia, which is also PIC'd to MCI. To route the call, Bell Atlantic's local switch 21 accesses a database 26 that stores an identification of the PIC for each Bell Atlantic subscriber. JA 59 (col. 2, lines 61-64). According to this example, the information in the database indicates that telephone 11 is PIC'd to MCI for long-distance calls. Based on that information, local switch 21 directs the call to whatever receiving switch MCI designates—in this example, MCI switch 301. The call is ultimately routed over various switches, trunks, and transmission lines to MCI's terminating switch 302, which is affiliated with the terminating local exchange company, here, BellSouth. MCI's switch 302 then forwards the call to BellSouth's local switch 41, which, in turn, passes the call directly to telephone 51.

2. The Asserted Claims Cover a Method of Generating a Message Record Including a PIC Indicator

In contrast to the environment in which the claimed invention is intended to operate, the claimed invention relates to a method for generating a message record including a "PIC indicator." The PIC indicator is simply a "further piece of data" in the message record. JA 59 (col. 1, line 54). "The value of the PIC indicator . . . is

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[2] Although this example discusses "1+ equal access" calls, the patent is directed to "*any* call" carried by a long-distance carrier. JA 61 (col. 6, lines 61-63) (emphasis added); *see also* JA 59 (col. 1, lines 30-35). Thus, contrary to AT&T's assertions, the claimed method is not restricted to long-distance calls that are dialed on a "1 +" basis, but also covers "0+" calls, "800" calls, operator-assisted calls, and "10XXX" (now 10-10XXX) dial-around calls. *See, e.g.,* JA 60 (col. 4, lines 23-29).

an indication as to whether the PIC of the terminating subscriber of the call in question is" a particular predetermined long-distance carrier. JA 60 (col. 4, lines 11-13). Moreover, "[i]n various embodiments, this indication may take the form of a code which actually identifies the terminating subscriber's PIC." *Id.* (col. 4, lines 14-16).

Alternatively, "the PIC indicator may simply be in the form of a flag, or indicator, which indicates, at a minimum, whether or not the terminating subscriber's PIC" is a particular predetermined long-distance carrier, *e.g.*, "IXC 30." *Id.* (col. 4, lines 16-19). As set forth in the claims corresponding to this embodiment, the PIC indicator has a "value which is a function of whether or not the interexchange carrier associated with said terminating subscriber is a predetermined one of said interexchange carriers" (claim 1), "a particular value when the particular interexchange carrier over which the call was carried is the PIC for [the] terminating subscriber," (claim 12), or has a value that indicates "that the interexchange carrier associated with [the] terminating subscriber is [the] specific interexchange carrier over whose facilities [the] call was routed" (claim 40).

In another embodiment, the "PIC indicator is even more explicit." *Id.* (col. 4, line 20). According to this embodiment, the PIC indicator is set "[i]f both of the subscribers are PIC'd to IXC 30." *Id.* (col. 4, lines 31-33). Otherwise, it is not set. *Id.* For example, as set forth in claim 18, the PIC indicator has a "particular value when the particular interexchange carrier over which [the] call was carried is the PIC for [the] terminating subscriber and is also the PIC for [the] originating subscriber." Thus, the resulting PIC indicator indicates whether the terminating and originating subscribers are PIC'd to the same long-distance carrier. *Id.* (col. 4, lines 21-22). At a minimum, the PIC indicator indicates whether the terminating subscriber is PIC'd to a particular long-distance carrier, *e.g.*, IXC 30. *Id.* (col. 4, lines 33-37).

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a.   Detailed Description of the Claimed Method

Claim 1, which is representative of the claims in dispute, recites as follows:

> A method for use in a telecommunications system in which interexchange calls initiated by each subscriber are automatically routed over the facilities of a particular one of a plurality of interexchange carriers associated with that subscriber, said method comprising the steps of:
>
> [1]   generating a message record for an interexchange call between an originating subscriber and a terminating subscriber, and
>
> [2]   including, in said message record, a primary interexchange carrier (PIC) indicator having a value which is a function of whether or not the interexchange carrier associated with said terminating subscriber is a predetermined one of said interexchange carriers. [JA 62].

Step [1] of the claimed method, *i.e.*, generating a message record, is carried out at the completion of the long-distance call. At that time, the long-distance carrier generates an "automatic message account" message record for the call, which is later reformatted into an industry-standard exchange message interface format, shown conceptually in Figure 2. JA 60 (col. 3, lines 26-48). This step is not novel and merely claims in the abstract the industry medium that reflects the billing data for each long-distance call. JA 59 (col. 1, lines 9-14). Moreover, this step does not set forth any physical organization of the "message record" or the data it may contain, nor is any such organization described in the specification. JA 60 (col. 3, line 49-col. 4, line 10). *See* Section III.C.2., *infra* at 41.

Step [2] of the claimed method involves "including" a PIC indicator in the message record. Specifically, this second step of the claimed method begins by accessing a database that stores "nothing more than a list of all, or at least substantially all, of the telephone numbers" of subscribers of any local exchange

carrier which are PIC'd to IXC 30. JA 61 (col. 5, lines 10-13).[3] With reference to Figure 5 of the patent, the specification explains that the acquired data is then manipulated according to a comparison step necessary to generate or set the PIC indicator. In particular:

> [I]t is first determined at step 506 whether the originating subscriber is PIC'd to IXC 30. If not, there is no need to continue further inasmuch as PIC indicator 3419 will necessarily be in the "not set" state, as shown in Fig. 3. On the other hand, if the originating subscriber is PIC'd to IXC 30, then it is determined at step 508 whether the terminating subscriber is PIC'd to IXC 30. If the terminating subscriber is not PIC'd to IXC 30, then, again, PIC indicator 3419 will be left in the "not set" state. If, however, the terminating subscriber is PIC'd to IXC 30, then PIC indicator 3419 will be put in the "set" state, as indicated at step 511.

JA 61 (col. 5, lines 45-57); *see also* JA 57 (Figure 5).

Thus, step [2] of the claimed method is essentially comprised of the general substeps of: (1) accessing information regarding the carrier to which a subscriber is PIC'd; (2) determining whether the originating and the terminating subscribers are PIC'd to the same long-distance carrier, or alternatively, whether the terminating subscriber is PIC'd to a particular predetermined long-distance carrier; and (3) recording the results of that determination by setting (or not setting) an entry in a data field of the message record generated in step [1] of the claimed method. *See* JA 60-61 (col. 4, line 11 - col. 5, line 37).

From the standpoint of section 101, the first substep is a data-gathering step that involves looking up entries in a PIC database to provide data necessary to carry out the claimed method. The second substep constitutes a basic mathematical-logic operation. According to this operation, the data undergoes a comparison step to

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[3] Claims 4, 13, 19, and 40, expressly recite this step of accessing a database "in which are stored the telephone numbers of substantially all of the subscribers associated" with a particular long-distance carrier. *See* Section IV.A, *infra* at 44.

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determine whether the originating and terminating subscribers are PIC'd to the same long-distance carrier (as shown in the truth table of Figure 3, reproduced below):

FIG. 3

ORIGINATING SUBSCRIBER
PIC'D TO CARRIER 30?

		YES	NO
TERMINATING SUBSCRIBER PIC'D TO CARRIER 30?	YES	SET	NOT SET
	NO	NOT SET	NOT SET

JA 55. Alternatively, the PIC indicator is set depending on whether the terminating subscriber is PIC'd to a particular predetermined long-distance carrier (as shown in the truth table of Figure 7):

FIG. 7

TERMINATING SUBSCRIBER PIC'D TO CARRIER 30?		
	YES	SET
	NO	NOT SET

JA 58.

As such, the claimed method of generating a PIC indicator implements a basic and well-known principle of propositional calculus—a subset of Boolean mathematics—known as the "AND" logic operator or connective. Expressed mathematically as "$p \wedge q$," this principle results in "a proposition that is true

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precisely when both p and q are true, and is false otherwise." Encyclopedia of Computer Science at 136 (Anthony Ralston et al. eds., Van Nostrand Reinhold 1993). Thus, in the "mathematics of computing," the AND operator is a form of "Boolean multiplication" that functions according to the following truth table:

p	q	p $\wedge$ q
0	0	0
0	1	0
1	0	0
1	1	1

The IEEE Standard Dictionary of Electrical and Electronic Terms 33 (6th ed.1996).

In the context of the '184 patent, the result of this operation is true (*i.e.*, the PIC indicator is set) only when p and q are true (*i.e.*, only if the originating and terminating subscribers are PIC'd to the same carrier or if the terminating subscriber is PIC'd to a particular predetermined long-distance carrier, *e.g.*, IXC 30). Thus, according to the outcome of the mathematical operation embodied in the asserted claims, the PIC indicator is set (or not set) as a value in a data field of the message record generated in step [1]. JA 60 (col. 4, lines 30-39; col. 4, line 62-col. 5, line 4). This step of setting the PIC indicator is an inherent data-entry step which simply records the result of the mathematical operation embodied in the asserted claims.[4]

b.   Recitation of Post-Solution Activity

Incidental to the claimed method of generating the PIC indicator, the '184 patent discloses that the PIC indicator and other information stored in the various fields of the call message record can be subsequently processed by a billing system that rates the call (*i.e.*, computes the toll applicable to a call) and bills for the call (*i.e.*, produces printed or electronic invoices to the subscriber). JA 61 (col. 6, lines

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[4]   Step [1] of the claimed method thus serves as an antecedent step for the data-entry step embodied in step [2].

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22-43). In this regard, dependent claims 6, 15, and 21 recite a further "post-solution" step of billing as a function of the PIC indicator. *See* Section IV.B, *infra* at 46. While not expressly provided in the claims, the specification states that the PIC indicator permits a carrier to bill discount rates, particularly where the PIC indicator shows that a call is between subscribers which are PIC'd to the same long-distance carrier. For example, a call between an originating subscriber and a terminating subscriber which are both PIC'd to the same long-distance carrier may be charged at a rate less than a call to a terminating subscriber which is PIC'd to a different carrier than the originating subscriber. JA 59 (col. 1, line 66-col. 2, line 6).

B. The Judgment Below

On March 26, 1998, after extensive briefing by the parties, the district court conducted a hearing on Excel's motion for summary judgment of invalidity under section 101. Throughout the hearing, the district court expressed concern that, although the patent disclosed the environment in which the method is intended to operate (*i.e.*, where) and the result that it is intended to achieve (*i.e.*, why), such disclosure did not necessarily define *what* the method was doing or even how it was doing it. JA 325-27, 338-40. Indeed, as AT&T conceded, neither the language of the claims nor the patent specification recites specific structural elements for generating the PIC indicator.[5]

After full briefing and argument by the parties, the district court granted Excel's motion for summary judgment that the asserted claims of the '184 patent were invalid under section 101. JA 1, 2. In reaching that conclusion, the court canvassed Supreme Court and Federal Circuit precedent controlling the section 101

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[5] After explaining how the PIC indicator is generated, AT&T's attorney admitted that "[a]ll of that kind of stuff is not set forth in this patent." JA 341.

inquiry. The district court's opinion reflects its appreciation that, despite different judicial articulations regarding whether a method claim is drawn to nonstatutory subject matter, the answer to that question turns essentially on whether the claim is for a process that goes beyond simply manipulating abstract ideas. *Id.* at 10-13.

Guided by the specification and the language of the asserted claims of the '184 patent, the district court concluded that "the crux of the invention is to include a 'PIC indicator' on the standard EMI message record." *Id.* at 8-9. Although the patent did not specifically disclose the physical structure for generating the PIC indicator, the court concluded that the PIC indicator is the product of a calculation and that the claims at issue "implicitly recite a mathematical algorithm." *Id.* at 16-17. Additionally, the district court determined that there was nothing physical about the claimed method of generating the PIC indicator. The court recognized that, although the claimed method retrieved "certain information that is already known within a telecommunications system (the PICs of the originating and terminating subscribers)," that step constituted an antecedent data-gathering step that did not impart patentability under section 101. *Id.* at 17. Moreover, the court concluded that the PIC information itself was not physically changed or transformed in any substantive way by the claimed method. *Id.* at 18-18a.

Having failed to counter effectively Excel's arguments of invalidity below, AT&T now urges reversal by criticizing certain select phrases found in the court's 16-page opinion. Such criticism, however, is unavailing, as this Court "reviews judgments, not phrases in opinions." *See FMC Corp. v. Hennessey Indus., Inc.*, 836 F.2d 521, 524, 5 USPQ2d 1272, 1274 (Fed. Cir. 1987). This is particularly true in light of the fact that the district court was under no obligation to issue any opinion in connection with its judgment under Fed. R. Civ. P. 56. *See* Fed. R. Civ. P. 52(a)

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(providing that "[f]indings of fact and conclusions of law are unnecessary on decisions of motions under . . . Rule 56").

SUMMARY OF THE ARGUMENT

The asserted claims recite a method of generating a message record including a "PIC indicator" reflective of whether the originating and terminating subscribers are PIC'd to the same interexchange carrier or whether the terminating subscriber is PIC'd to a particular predetermined interexchange carrier. The PIC indicator is the product of a classic principle of computational mathematics in which data are compared to determine whether they are the same. This abstract concept is not applied to or limited by any physical elements or physical process steps. Thus, the district court correctly concluded that the asserted claims of the '184 patent cover nothing more than an intangible mathematical algorithm.

The result reached by the district court is not inconsistent with this Court's recent decision in *State Street Bank*. Unlike the means-plus-function claims in *State Street Bank*, which expressly covered a machine defined by specific structures disclosed in the written description for performing a practical function, the mathematical algorithm embodied in the method of the asserted claims remains an abstract construct that is unrestricted by the structural elements disclosed elsewhere in the patent. Read in the context of the controlling precedent from which it derives, *State.Street Bank* confirms that the asserted claims are directed to subject matter not recognized under section 101.

The method of the asserted claims is devoid of the characteristics that courts have long used to identify patentable claims reciting a mathematical algorithm. There is nothing physical about what the method claimed in the '184 patent does, *i.e.*, collects data that itself is not representative of any physical phenomenon, activity,

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or object; performs a mathematical operation on the data; and records that data in a record. The claimed method does not physically transform the data, is not a part of an overall physical process, does not manipulate physical signals, and is not defined by structural elements. AT&T cannot transform this otherwise abstract method into a physical process by relying on antecedent data-gathering, implicit data-recording, and incidental post-solution steps that fail to impart patentability under section 101 as a matter of law.

Moreover, the claims fail to invoke any physical activities or elements beyond field-of-use limitations and incidental post-solution activities that are insufficient as a legal matter to impart patentability under section 101. Consequently, AT&T attempts to engraft structural elements onto the claimed method by improperly attributing structure defining the environment in which the method is designed to operate to the method itself. But the claim language that defines the method at issue belies AT&T's *post hoc* effort to redefine the claimed invention. Consequently, the mathematical operation embodied in the claims remains detached from any physical activity or object. When viewed as a whole, the claimed method of generating a message record including a PIC indicator involves nothing more than abstractions resulting from the manipulation of data in the nature of a mathematical algorithm. This abstract data manipulation encapsulates not only how the invention works, but what it does as well.

Because the asserted claims of the '184 patent are not directed to subject matter entitled to protection under the patent laws, the district court correctly entered judgment of invalidity as a matter of law.

ARGUMENT

I. AT&T Does Not Dispute that Summary Adjudication Is Appropriate on the Issue of Invalidity Under 35 U.S.C. § 101

Summary judgment is appropriate when there are no genuine issues of material fact and the movant is entitled to judgment as a matter of law. *See* Fed. R. Civ. P. 56(c). Summary judgment is intended to "dispose of factually unsupported claims" and "to secure the just, speedy and inexpensive determination of every action." *Celotex Corp. v. Catrett*, 477 U.S. 317, 323-24, 327 (1986).

Whether a claim is drawn to statutory subject matter, as defined by section 101, is a question of law. *See State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, No. 96-1327, slip op. at 3 (Fed. Cir. July 23, 1998); *Arrhythmia Research Tech. v. Corazonix Corp.*, 958 F.2d 1053, 1055, 22 USPQ2d 1033, 1035 (Fed. Cir. 1992). Thus, the issue of invalidity under section 101 is amenable to summary judgment in absence of disputed issues of material fact. *Arshal v. United States*, 621 F.2d 421, 433, 208 USPQ 397, 409 (Ct. Cl. 1980), *cert. denied*, 449 U.S. 1077 (1981); *Levi Strauss & Co. v. Golden Trade, S.r.l.*, 1995 U.S. Dist. LEXIS 4899 at *29-30 (S.D.N.Y. Apr. 14, 1995) (noting that "as patentability [under section 101] is a question of law and there are no facts in dispute, summary judgment is granted . . . that claims 5, 14, and 20 are invalid in that they are directed to nonpatentable subject matter").

In the present case, because there are no genuine issues of material fact in dispute, the propriety of the district court's grant of summary judgment of invalidity turns exclusively on an issue of law. Accordingly, this Court need only decide the same question of law decided by the district court on summary judgment. *Glaxo Operations UK Ltd. v. Quigg*, 894 F.2d 392, 395, 13 USPQ2d 1628, 1630 (Fed. Cir. 1990). Specifically, this Court must determine on appeal whether the asserted claims

of the '184 patent are invalid under section 101 because they claim subject matter not entitled to patent protection.

In undertaking this legal task, this Court is not confined to the recorded events of the *ex parte* prosecution proceedings before the PTO, as AT&T incorrectly suggests (AT&T Br. at 13, 24). *See Greenwood v. Hattori Seiko Co.*, 900 F.2d 238, 240, 14 USPQ2d 1474, 1476 (Fed. Cir. 1990) (holding that in assessing validity, courts are not constrained by the positions taken by the examiner and the applicants in the Patent Office). Thus, it is of no moment in this appeal that the PTO failed to raise a rejection under section 101 during prosecution of the application that issued as the '184 patent. "The courts are the final arbiter of patent validity and, although courts may take cognizance of, and benefit from, the proceedings before the patent examiner, the question is ultimately for the courts to decide . . . ." *Quad Envtl. Technologies Corp. v. Union Sanitary Dist.*, 946 F.2d 870, 876, 20 USPQ2d 1392, 1396 (Fed. Cir. 1991).

Moreover, because the PTO is not infallible,[6] this Court has rejected the argument that the courts cannot reach a different conclusion regarding patentability on the same invention that was before the PTO. *See Burlington Indus., Inc. v. Quigg*, 822 F.2d 1581, 1584, 3 USPQ2d 1436, 1439 (Fed. Cir. 1987). As was true with respect to the district court below, this Court has "a powerful advantage over the

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[6] This has been particularly true with regard to computer-related inventions. Only recently has the PTO developed special examination guidelines for computer-related inventions. which were implemented nearly two years after the '184 patent issued. Examination Guidelines for Computer-Related Inventions, 61 Fed. Reg. 7478 (U.S. Patent and Trademark Office Feb. 28, 1996) (effective March 29, 1996).

patent examiner" in the form of extensive discussion and briefing on this issue. *See id.* at 1582, 3 USPQ2d at 1437.

Accordingly, this Court should undertake an independent evaluation of the validity of the asserted claims under section 101, guided by the statute and controlling legal precedent. In so doing, this Court may sustain the district court's entry of judgment in favor of Excel on the issue of invalidity on any ground supported by the record. *See United States v. New York Tel. Co.*, 434 U.S. 159, 166 n.8 (1977); *see also Datascope Corp. v. SMEC, Inc.*, 879 F.2d 820, 822 n.1, 11 USPQ2d 1321, 1322 n.1 (Fed. Cir. 1989) (noting that "[a]ppellees always have the right to assert alternative grounds for affirming the judgment that are supported by the record"), *cert. denied*, 493 U.S. 1024 (1990).

II. Abstract Ideas Are Non-Statutory Subject Matter

A. The Mathematical Algorithm Exception Remains Viable Under Supreme Court and Federal Circuit Precedent

Section 101 imposes one of the "rigorous statutory tests for the issuance of a patent." *Kewannee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 476-77 (1974). Despite the oft-quoted statement in the statute's legislative history that statutory subject matter "include[s] anything under the sun that is made by man,"[7] Congress did not so provide in the patent statute. *In re Warmerdam*, 33 F.3d 1354, 1358, 31 USPQ2d 1754, 1757 (Fed. Cir. 1994). Thus, while the legislative history may appear to support a broad construction of the statute, "[t]his is not to suggest that § 101 has no limits or that it embraces every discovery." *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980); *Diamond v. Diehr*, 450 U.S. 175, 185 (1981) (reaffirming that "[t]his

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[7] S. Rep. No. 1979, 82d Cong., 2d Sess., 5 (1952); H.R. Rep. No. 1923, 82d Cong., 2d Sess., 6 (1952).

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Court has undoubtedly recognized limits to § 101 and every discovery is not embraced within the statutory terms").

The law defines as patentable subject matter only those things that qualify as "any . . . process, machine, manufacture, or composition of matter, or any . . . improvement thereof." 35 U.S.C. § 101. By including some things within its scope, section 101 necessarily excludes others. *Warmerdam*, 33 F.3d at 1358, 31 USPQ2d at 1757. In that regard, the law is well settled that certain categories of subject matter are not entitled to patent protection—namely, subject matter that represents nothing more than "laws of nature, natural phenomenon, and abstract ideas." *Diehr*, 450 U.S. at 185. Within the ambit of these nonstatutory categories falls mathematical subject matter, including algorithms, formulae, and equations, that "are the basic tools of scientific and technological work." *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972).

The Supreme Court has defined a mathematical algorithm for purposes of section 101 as a "procedure for solving a given type of mathematical problem." *Id.* at 65. For that matter, mathematical algorithms represent nothing more than "ideas or mental processes and are simply logical vehicles for communicating possible solutions to complex problems." *In re Meyer*, 688 F.2d 789, 794-95, 215 USPQ 193, 197 (CCPA 1982).

Under section 101, the courts have set the dividing line between patentable and unpatentable claims reciting a mathematical algorithm at whether the algorithm is "applied to or limited by physical elements or process steps." *Arrhythmia*, 958 F.2d 1053, 1058, 22 USPQ2d 1033, 1037 (Fed. Cir. 1992). Thus, for example, the courts have looked to whether the algorithm physically transforms an article into a different state or thing, *e.g., Diehr* (process for curing molded synthetic rubber), whether it is part of an overall physical process, *e.g., In re Abele*, 684 F.2d 902, 214 USPQ 682 (CCPA 1982) (mapping X-ray attenuation data representative of CAT

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scan images), whether it manipulates physical signals, *e.g.*, *Arrhythmia* (analyzing electrical signals representative of human heart), and whether it is defined by significant and substantial structural elements, *e.g.*, *In re Alappat*, 33 F.3d 1526, 31 USPQ2d 1545 (Fed. Cir. 1994) (in banc) (machine defined by means-plus-function elements incorporating disclosed structure and reciting specific physical functions). As set forth below, *see* Section III.C, *infra* at 29, the method of the asserted claims satisfies none of these criteria.

B.   The Court in *State Street Bank* Did Not Undo Three Decades of Supreme Court and Federal Circuit Law

The long-standing principles articulated above were not upset by this Court's recent decision in *State Street Bank*, in which the Court held that claims directed to a machine defined by means-plus-function elements under 35 U.S.C. § 112, paragraph 6, were valid under section 101. That decision is confined to its facts and must be read consistently with the controlling precedent of the Supreme Court and this Court.

The Court in *State Street Bank* proposed that the determination whether a claim encompasses statutory subject matter should focus "on the essential characteristics of the [claimed] subject matter, in particular, its practical utility." Slip op. at 13. More specifically, the Court stated that "[u]npatentable mathematical algorithms are identifiable by showing they are merely abstract ideas constituting disembodied concepts or truths that are not 'useful.'" *Id.* at 9. In other words, "[f]rom a practical standpoint, this means that to be patentable an algorithm must be applied in a 'useful' way." *Id.*

The Court's statements in *State Street Bank* proposing a "practical utility" standard for section 101 determinations are predicated on questionable legal

grounds.[8] For example, the court relied on *Diehr* as the principal basis for applying this new standard. *Id.* at 8-9. According to the Court, "[i]n *Diehr*, the [Supreme] Court explained that certain types of mathematical subject matter, standing alone, represent nothing more than abstract ideas until reduced to some type of practical application, i.e., a useful, concrete and tangible result." *Id.* (citation and internal quotes omitted).

But the Supreme Court in *Diehr* did not establish "practical utility" as the standard by which to gauge patentability under section 101, thereby supplanting the line of cases springing from *Benson* focusing on physical elements and steps.[9] In *Diehr*, the Court's holding that a "physical and chemical process for molding

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[8] Such statements also constitute dicta. The court in *State Street Bank* could have decided the issue on the basis of its § 112, ¶ 6 analysis alone, *see* Section III.C.1.a., *infra* at 30, and thus its further pronouncements regarding practical utility were unnecessary to the decision and represent dicta. *In re McGrew*, 120 F.3d 1236, 1238, 43 USPQ2d 1632, 1635 (Fed. Cir. 1997).

[9] Importantly, the Court in *Diehr* did not overrule the principles set forth in *Benson* and its progeny. As this Court has correctly recognized, "*Benson* remains the law. Indeed, *Benson* is cited in both *Diehr* and *Chakrabarty*, with no apparent attempt in either opinion to overrule or disapprove of it." *In re Grams*, 888 F.2d 835, 838, 12 USPQ2d 1824, 1827 (Fed. Cir. 1989). Thus, the *Diehr* Court offered no criticism in its recognition that *Benson* and *Parker v. Flook*, 437 U.S. 584 (1978), "stand for no more than [the] long-standing principle[ ]" that abstract ideas are excluded from the scope of section 101. 450 U.S. at 185. That statement has been cited with approval as support for the continuing viability of *Benson* and *Flook*. *Warmerdam*, 33 F.3d at 1358, 31 USPQ2d at 1757.

precision synthetic rubber products falls within the § 101 categories of possibly patentable subject matter" did not turn on whether the process had a practical utility, but whether the process involved a physical transformation, *i.e.*, "the transformation of an article, in this case raw, uncured synthetic rubber, into a different state or thing." 450 U.S. at 184. Indeed, the Court specifically rejected the notion that the requirements of section 101 could be circumvented by "attempting to limit the use" of a mathematical algorithm "to a particular technological environment." *Id.* at 191.

The Court in *State Street Bank* also found support for a "practical utility" test in *Alappat* and *Arrhythmia*. *See* slip op. at 9. But neither *Alappat* nor *Arrhythmia* was decided based on whether the claimed invention had a practical utility. In *Alappat*, the means-plus-function elements recited in the claims represented circuitry elements comprising a patentable machine for converting discrete waveform data into a smoothed waveform on a display means. 33 F.3d at 1544, 31 USPQ2d at 1557. Importantly, patentability of the claimed invention in *Alappat* turned on the presence of physical structure and the occurrence of a physical transformation. Specifically, the Court concluded that the mathematical steps embodied in the invention were reduced to "a particularly claimed combination of elements performing the particularly claimed combination of calculations to transform, i.e., rasterize, digitized waveforms (data) into anti-aliased, pixel illumination data to produce a smooth waveform." *Id.*, 31 USPQ2d at 1558. That conclusion was dictated by the particular way in which the invention was claimed—as a machine defined by means-plus-function elements incorporating specific structure disclosed in the specification to perform a specific function.

Similarly, in *Arrhythmia*, the Court concluded that the apparatus claims, also "claimed in the style of 35 U.S.C. § 112, paragraph 6," defined a patentable combination of structural elements performing specified physical functions. 958

F.2d at 1060, 22 USPQ2d at 1038-39. In addition, the Court, employing the *Freeman-Walter-Abele* test,[10] concluded that the method claims were directed to statutory subject matter in that they were comprised of physical process steps that transformed one physical electrical signal into another. *Id.* at 1059, 22 USPQ2d at 1037-38.

In any event, a practical utility test would tend to conflict with Supreme Court precedent holding that a claimed process reciting a mathematical algorithm may be nonstatutory even if it implements that algorithm in a "specific fashion" or is "tied to a specific end use." *Flook*, 437 U.S. at 593, 595 n.18. For that matter, the Supreme Court decisions of *Benson* and *Flook* illustrate the pitfalls of a "practical utility" standard for assessing patentability under section 101.

For example, the claimed method in *Benson* of converting binary-coded decimal numerals into pure binary numerals had a direct, if not exclusive, application in connection with digital computers. 409 U.S. at 64, 71; *see also Diehr*, 450 U.S. at 185 (noting that the "sole practical application of the algorithm [in *Benson*] was

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[10] According to the Court in *State Street Bank*, "[a]fter *Diehr* and *Chakrabarty*, the Freeman-Walter-Abele test has little, if any, applicability to determining the presence of statutory subject matter." Slip op. at 10. *Abele*, however, was decided after *Diehr* and *Chakrabarty*. Moreover, years after the Supreme Court last spoke on this issue in 1980, the two-part *Freeman-Walter-Abele* test continued to find a prominent place in Federal Circuit precedent regarding statutory subject matter. *E.g., Grams; In re Iwahashi*, 888 F.2d 1370, 12 USPQ2d 1908 (Fed. Cir. 1989); *In re Schrader*, 22 F.3d 290, 30 USPQ2d 1455 (Fed. Cir. 1994). This Court has never overruled that line of cases. *See Alappat*, 33 F.3d at 1543 n.21, 31 USPQ2d at 1557 n.21.

in connection with the programming of a general purpose digital computer"); *Flook*, 437 U.S. at 590 n.11 (stating that in *"Benson* there was a specific end use contemplated for the algorithm—utilization of the algorithm in computer programming"). Similarly, the claimed method of computing numerical alarm limits in *Flook* was specifically intended to have practical application in catalytic conversion processes. 437 U.S. at 586; *see also Chakrabarty*, 447 U.S. at 315 (noting that in *Flook*, the Court held that "a claim for an improved method of calculation, even when tied to a specific end use, is unpatentable under § 101"). Yet, in each of those cases, the Supreme Court held that the claims were *unpatentable* under section 101 because they were drawn to nothing more than abstract ideas.

Additionally, in *Warmerdam*—a case decided after *Diehr*, *Arrhythmia*, and *Alappat*—the claimed method of generating a data structure representing the shape of physical objects according to a bubble hierarchy had direct practical usefulness in controlling the motion of robotic machines to avoid collisions with other moving or fixed objects. Indeed, the claims recited a specific useful application for the claimed method: "for generating a data structure which represents the shape of [a] physical object in a position and/or motion control machine." 33 F.3d at 1357, 31 USPQ2d at 1756. Nevertheless, this Court in *Warmerdam* ruled that the method was *unpatentable* under section 101 because it simply manipulated an abstract idea.[11] 33 F.3d at 1360, 31 USPQ2d at 1759; *see also In re Richman*, 563 F.2d 1026, 1030, 195 USPQ 340, 343 (CCPA 1977) (stating that "if a claim is directed essentially to a method of calculating, using a mathematical formula, even if the solution is for a specific purpose, the claimed method is nonstatutory").

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[11] By contrast, the Court concluded that the *machine* claim in *Warmerdam* was "clearly patentable subject matter." 33 F.3d at 1360, 31 USPQ2d at 1759.

Thus, reading *State Street Bank* as broadly as controlling precedent permits, that case supports the proposition that a claim reciting a mathematical algorithm does not cover an abstract idea if it has been sufficiently reduced to some practical application by express physical limitations, such as those defining a machine under section 112, paragraph 6. In the present case, the district court's judgment of invalidity is consistent with that rule. Indeed, as detailed in Sections III.C and IV, *infra*, the mathematical algorithm embodied in the asserted claims of the '184 patent is not reduced to any practical application, beyond antecedent data-gathering and post-solution activities of the type that have been deemed insufficient, standing alone, to impart patentability to a claim reciting a mathematical algorithm.

III. The Asserted Claims Are Drawn to an Abstract Idea

Whether an invention is drawn to nonstatutory subject matter depends, of course, on the nature of the invention itself. Thus, "[i]n all instances, this critical question must be answered: 'What did applicants invent?'" *Grams*, 888 F.2d at 839, 12 USPQ2d at 1827.

A. The Claimed Method Covers a Mathematical Construct

By focusing on the elements of Figure 1 in describing the claimed invention, AT&T confuses the *method* claimed in the '184 patent with the *environment* in which is it is intended to operate. The asserted claims are directed to a method for generating a message record containing information indicating whether the originating and terminating subscribers are PIC'd to the same long-distance carrier, or, alternatively, whether the terminating subscriber is PIC'd to a particular long-distance carrier. Thus, while Figure 1 of the '184 patent schematically depicts the elements of a simplified version of the long-distance telephone network in which the claimed method was intended to operate, none of those elements is referenced in any

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of the asserted claims. Rather, to understand "what the applicants invented," reference must be made to Figures 3 and 7, which illustrate two different embodiments of the claimed invention.

The core step in the claimed method involves comparing PIC information *en route* to setting the PIC indicator in the message record. Depending on the embodiment in question, the PIC indicator is only set if the originating and terminating subscribers are PIC'd to the same long-distance carrier (according to the truth table of Figure 3). Alternatively, the PIC indicator is set if the long-distance carrier to which a terminating subscriber is PIC'd is the same as a predetermined long-distance carrier, such as "IXC 30" (according to the truth table of Figure 7). As such, the step of setting the PIC indicator embraces a classic AND logic function "$p \wedge q$" that produces a positive or "true" result only when p and q are the same. Thus, the claimed method of including a PIC indicator in a message record embodies a fundamental principle of computational mathematics. *See Digital Biometrics, Inc. v. Identix, Inc.*, 1998 U.S. App. LEXIS 14928 at *12 n.2 (Fed. Cir. July 7, 1998) (noting whether a function is described as "logical" or "mathematical" is "a distinction without a difference").

B.   A Claim Need Not Contain an Express Equation or Formula
to Be Directed to a Mathematical Algorithm for Purposes
of Section 101

While the asserted claims do not expressly recite a formula or equation, that is not determinative of whether they are in fact drawn to a mathematical algorithm. "Words in a claim operating on data to solve a problem can serve the same purpose as a formula." *Grams*, 888 F.2d at 837 n.1, 12 USPQ2d at 1826 n.1. Mathematical algorithms, which can be formally expressed as formulas or equations, can also be substantively embodied in a method defined by "words which mean the same thing" as a mathematical formula or equation. *See Richman*, 563 F.2d at 1030, 195 USPQ

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at 344; *see also In re Toma*, 575 F.2d 872, 877, 197 USPQ 852, 856 (CCPA 1978) (agreeing "that the form in which an 'algorithm' is recited, whether algebraic or prose, is of no moment" under section 101).

For example, in *Grams*, this Court found a mathematical algorithm in a method for testing a complex system to determine whether the system condition is normal or abnormal, and, if it is abnormal, to determine the cause of the abnormality. The method in question was defined by the following steps:

> [a] performing said plurality of clinical laboratory tests on the individual to measure the values of the set of parameters;

> [b] producing from the set of measured parameter values and the reference ranges of values a first quantity representative of the condition of the individual;

> [c] comparing the first quantity to a first predetermined value to determine whether the individual's condition is abnormal;

> [d] upon determining from said comparing that the individual's condition is abnormal, successively testing a plurality of different combinations of the constituents of the individual by eliminating parameters from the set to form subsets corresponding to said combinations, producing for each subset a second quantity, and comparing said second quantity with a second predetermined value to detect a non-significant deviation from a normal condition;

> [e] identifying as a result of said testing a complementary subset of parameters corresponding to a combination of constituents responsible for the abnormal condition . . . .

Id. at 836-37, 12 USPQ2d at 1825. Despite the absence of any express formula or equation, the Court concluded that "steps [b]-[e] are in essence a mathematical algorithm." *Id.* at 837, 12 USPQ2d at 1826.

More recently, in *Schrader*, 22 F.3d 290, 30 USPQ2d 1455, this Court found a mathematical algorithm in a method for competitively bidding that included the following steps:

> [1] identifying a plurality of related items in a record,

> [2] offering said plurality of items to a plurality of potential bidders,

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[3] receiving bids from said bidders for both individual ones of said items and a plurality of groups of said items, each of said groups including one or more of said items, said items and groups being any number of all of said individual ones and all of the possible combinations of said items,

[4] entering said bids in said record,

[5] indexing each of said bids to one of said individual one of said groups of said items, and

[6] assembling a completion of all said bids on said items and groups, said completion identifying a bid for all of said items at a prevailing total price, identifying total price, identifying in said record all of said bids corresponding to said prevailing total price.

Id. at 292, 30 USPQ2d at 1456. Again, although the claim was devoid of any express equations or formulas, the court concluded that the claim inherently involved a procedure that "was within or similar to a class of well-known mathematical optimization procedures commonly applied to business problems called linear programming." *Id.*, 30 USPQ2d at 1457-58.

Similarly, in *Meyer*, 688 F.2d 789, 215 USPQ 193, the court held that a method that tested a complex system and analyzed the results of the tests embodied a mathematical algorithm. The testing method comprised the steps of:

(a) selecting a plurality of elements in the complex system, said elements having known locations;

(b) initializing a factor associated with each of said elements;

(c) testing the complex system for a response, which response, if effective, requires proper functioning of certain said elements, the probable identity of at least some of these certain elements being known;

(d) determining whether said response of the complex system was at least partially effective or ineffective;

(e) modifying the factor associated with at least some of said elements known to be [possibly] involved in the response in accordance with the effectiveness of the response; and

(f) repeating steps (c), (d), and (e) for further responses of the complex system to obtain resultant factors for at least some of said elements.

Id. at 792-93, 215 USPQ at 195-96. The court concluded that this testing method, which also did not expressly refer to any equation or formula, was also drawn to a mathematical algorithm. *Id.* at 796, 215 USPQ at 198-99.

As cases such as *Grams, Schrader,* and *Meyer* clearly indicate, the *substance* of what is claimed, not the *form* in which it is claimed, controls the inquiry whether a method recites a mathematical algorithm. Based on that standard, there is little room to dispute that the asserted claims of the '184 patent embody a mathematical algorithm, which in and of itself, is not cognizable as statutory subject matter.

C. The Claimed Method as a Whole Is No More than the Mathematical Algorithm Itself

Where, as here, a claim recites a mathematical algorithm, an inquiry must be made into whether the claim seeks patent protection for that algorithm in the abstract. *Diehr,* 450 U.S. at 191. Thus, "the dispositive issue for assessing compliance with section 101 in this case is whether the claim is for a process that goes beyond simply manipulating abstract ideas." *Warmerdam,* 33 F.3d at 1359, 1360, 31 USPQ2d at 1758, 1758-59. As set forth below, from the standpoint of section 101, the asserted claims of the '184 patent do not go beyond the manipulation of an abstract idea, and, therefore, are not susceptible to patent protection under section 101.

1. The Claimed Method Is Not Limited By a Physical Element, Activity, or Process

The Supreme Court has cautioned that "[t]he concept of patentable subject matter under § 101 is not like a nose of wax which may be turned and twisted in any direction." *Flook,* 437 U.S. at 590 (citation and internal quotes omitted). Yet, in this appeal, AT&T advances a revisionist view of the claimed invention, unleashing a host of new arguments not asserted below. For example, AT&T now argues that the asserted claims recite methods consisting of "physical steps," that the generation of a message record is a "physical activity," that the message record itself is a "physical

entity," that the PIC indicator is also "physical entity," and that the claims involve the "transformation of one physical thing into another." For reasons known only to AT&T, none of these arguments was ever presented to the district court in opposition to Excel's motion for summary judgment. But more importantly, none of these arguments is correct. AT&T's new contentions stem from a result-oriented construction of the claims that replaces claim language with lawyer argument.

a.   The Asserted Claims Are Devoid of Physical Limitations

The claims, which define the scope of the invention entitled to protection under the patent laws, are the touchstone from which invalidity under section 101 must be assessed. *Warmerdam*, 33 F.3d at 1360, 31 USPQ2d at 1759 (reaffirming that "[i]t is the claims which define the metes and bounds of the invention entitled to the protection of the patent system"). "Hence, the analysis requires careful interpretation of each claim in light of its supporting disclosure." *Grams*, 888 F.2d at 839, 12 USPQ2d at 1828 (internal quotes and citation omitted).

As written, the asserted claims of the '184 patent are not restricted by any language reciting sufficient physical activity to bring it outside the domain of abstract ideas. There is nothing physical about manipulating data to generate a PIC indicator *per se*. Similarly, the claims are unencumbered by any express limitation as to the specific machine, apparatus, or structure for carrying out the steps for generating a PIC indicator. Consequently, the mathematical algorithm that constitutes the essential subject matter of the asserted claims remains disembodied from any physical object or activity. *Schrader*, 22 F.3d at 293-94, 30 USPQ2d at 1458 (rejecting applicant's argument that claims recited sufficient physical activity and structure on the grounds that such activity and structure was nowhere mentioned in the claim language).

Indeed, none of the asserted claims expressly incorporates or is defined by the specific structure disclosed in the specification relating to a long-distance communications network. The asserted claims do not, as AT&T suggests, refer directly or indirectly to any switches, phones, transmission lines, computers, or other structural elements that are affiliated with the long-distance telecommunications network of Figure 1, in connection with the step of generating the PIC indicator.

Thus, the asserted claims stand in stark contrast to the claims held valid under section 101 in *State Street Bank.* The claims at issue in *State Street Bank* were drafted in means-plus-function format pursuant to 35 U.S.C. § 112, paragraph 6. With respect to claim 1, the only independent claim, the Court stated:

> When independent claim 1 is properly construed in accordance with § 112, ¶ 6, it is directed to a machine, as demonstrated below, where representative claim 1 is set forth, the subject matter in brackets stating the structure the written description discloses as corresponding to the respective "means" recited in the claims.

> 1. A data processing system for managing a financial services configuration of a portfolio established as a partnership, each partner being one of a plurality of funds, comprising:

> (a)   computer processor means [a personal computer including a CPU] for processing data;

> (b)   storage means [a data disk] for storing data on a storage medium;

> (c)   first means [an arithmetic logic circuit configured to prepare the data disk to magnetically store selected data] for initializing the storage medium;

> (d)   second means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases or decreases based on specific input, allocate the results on a percentage basis, and store the output in a separate file] for processing data regarding assets in the portfolio and each of the funds from a previous day and data regarding increases or decreases in each of the funds, [sic, funds'] assets and for allocating the percentage share that each fund holds in the portfolio;

(e)   third means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases and decreases based on specific input, allocate the results on a percentage basis and store the output in a separate file] for processing data regarding daily incremental income, expenses, and net realized gain or loss for the portfolio and for allocating such data among each fund;

(f)   fourth means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases and decreases based on specific input, allocate the results on a percentage basis and store the output in a separate file] for processing data regarding daily net unrealized gain or loss for the portfolio and for allocating such data among each fund; and

(g)   fifth means [an arithmetic logic circuit configured to retrieve information from specific files, calculate that information on an aggregate basis and store the output in a separate file] for processing data regarding aggregate year-end income, expenses, and capital gain or loss for the portfolio and each of the funds. [Slip op. at 5-6].

Accordingly, the Court in *State Street Bank* concluded that when "properly construed in accordance with § 112, ¶ 6, the claims covered "a machine, namely, a data processing system for managing a financial services configuration of a portfolio established as a partnership, which machine is made up of, at the very least, the specific structure disclosed in the written description," including a personal computer including a CPU, a data disk, and an arithmetic logic circuit. *Id.* at 6. That conclusion alone was enough to overturn the lower court's judgment of invalidity under section 101 based on this Court's precedent. *See Alappat* (holding that claims written in means-plus-function form are limited to the structure disclosed in the specification and equivalent structures, and thus contain statutory subject matter even if functional phrases of the means limitations recite mathematical calculations); *Arrhythmia* (holding apparatus claim under § 112, ¶ 6 statutory in view of description in specification); *Iwahashi* (holding that claim under § 112, ¶ 6 covers specific structure disclosed in the specification and is therefore directed to statutory subject

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matter); *In re Bradley*, 600 F.2d 807, 202 USPQ 480 (CCPA 1979) (holding that the recitation of hardware elements performing recited functions under § 112, ¶ 6 secure patentability under section 101), *aff'd*, 450 U.S. 381 (1981). Indeed, under straightforward application of cases such as *Alappat, Arrhythmia, Iwahashi,* and *Bradley*, the claims at issue in *State Street Bank* were firmly directed to statutory subject matter.[12]

Here, AT&T evidently knew how to draft the claims of the '184 patent to reduce the mathematical algorithm embodied therein to a practical application, as contemplated in *State Street Bank*. In certain of the claims of the '184 patent—which are not asserted by AT&T in this litigation—the mathematical algorithm is reduced to a practical application by a machine defined by specific structural elements disclosed in the specification. For example, claim 30 recites an apparatus comprising "means for generating a message record for an interexchange call between an originating subscriber and a terminating subscriber" and "means for providing in said message record a primary exchange carrier (PIC) indicator having a value which is a function of whether or not the interexchange carrier associated

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[12] The court in *State Street Bank* noted that the original patent application contained six "machine claims" and six method claims. However, the applicant had canceled the six method claims because "during prosecution the examiner contemplated a § 101 rejection for failure to state statutory subject matter." Slip op. at 4. Like the asserted claims at issue in this appeal, the canceled claims in *State Street Bank* were method claims reciting a field of use (*i.e.*, "for managing with a data processing system a financial services configuration") and steps involving receiving, processing, and storing data.

with said terminating subscriber is a predetermined one of said interexchange carriers." JA 63.

The asserted claims, by contrast, lack physical limitations necessary to reduce the mathematical algorithm embodied therein sufficient to transform the algorithm from an abstract idea to patentable subject matter. The asserted claims do not, for instance, directly or indirectly incorporate the physical structure comprising the long-distance communication network disclosed in the specification. Moreover, claims 1, 4, 12, 13, 18, 19, and 40 of the '184 patent, in particular, do not even specify any concrete or tangible use for the result of the mathematical operation embodied in the claimed method.[13] By failing to specify a useful application of the PIC indicator, the mathematical algorithm from which it derives constitutes an abstract or disembodied concept. Accordingly, the PIC indicator does not correspond to a useful, concrete, or tangible thing or result, and does not impart any patentability to these claims. *State Street Bank*, slip op. at 9.

Having drafted the asserted claims broadly to exclude physical limitations found in other claims of the '184 patent, AT&T may not now artificially infuse statutory subject matter into the asserted claims by resort to the patent specification. *Schrader*, 22 F.3d at 294, 30 USPQ2d at 1458 (stating that there is no basis to read limitations from the specification into the claims). Much like the patent application in *Grams*, the specification of the '184 patent "does not bulge with disclosure" regarding the implementation of the critical step of generating a message record containing the PIC indicator. Even if a computer is presumed to carry out the Boolean multiplication operation according to Figs. 3 and 7 of the specification, that

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[13] Thus, even under a "practical utility" test divorced from the teachings of *Benson* and *Flook*, these claims do not comply with section 101.

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alone would not save the claims under section 101. Such a computer would merely carry out a mathematical operation that can readily be performed "by head and hand," *Benson*, 409 U.S. at 65, or "by pencil and paper," *Flook*, 437 U.S. at 586.[14] In any event, the term "computer" is nowhere mentioned in the asserted claims.

That the preamble of the claims contains language describing the claimed method as one "for use in a telecommunications system" in which calls are "automatically routed over the facilities" of a long-distance carrier does not suggest a different conclusion. AT&T itself recognized that these preamble terms merely specify an intended purpose or field of use for the invention and do not limit the scope of the claims for purposes of infringement. JA 297-98. By the same token,[15] preamble terms that merely set forth the environment in which the method operates do not impart real and physical limitations on the scope of the claims for purposes of validity under section 101. *See In re Walter*, 618 F.2d 758, 767, 205 USPQ 397, 407 (CCPA 1980) (noting that a nonstatutory method is not "saved by a preamble merely reciting the field of use of the mathematical algorithm"); *see also* PTO

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[14] Assuming the claimed method is actually performed by a computer—an assumption that is not borne out by the claims or the specification—the mathematical algorithm $p \wedge q$ could be implemented in the simple code instruction "if $p = q$ (and p does not equal 0), then PIC = set; else PIC = not set," where, according to Figure 3, $p = 1$ if the originating subscriber is PIC'd to carrier 30 and $q = 1$ if the terminating subscriber is PIC'd to carrier 30. Accordingly, PIC = set if both the p and q equal 1, i.e., both subscribers are PIC'd to carrier 30.

[15] Claims should be construed consistently for the purposes of validity and infringement. *See W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 842 F.2d 1275, 1279, 6 USPQ2d 1277, 1280 (Fed. Cir. 1988).

Guidelines for Computer-Related Inventions, 61 Fed. Reg. at 7485 (stating that for purposes of patentability under section 101, "[c]laim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim, particularly when only presented in the claim preamble"); *In re Christensen*, 478 F.2d 1392, 1394, 178 USPQ 35, 37 (CCPA 1973) (holding that an "in situ" limitation does not render a claim to a mathematical algorithm patentable under section 101).

Even if the preambles of the asserted claims purport to relate the claimed method to a long-distance telecommunications system, that alone cannot bring the otherwise nonstatutory method within the scope of section 101. "A mathematical formula as such is not accorded the protection of our patent laws, and this principle cannot be circumvented by attempting to limit the use of the formula to a particular technological environment." *Diehr*, 450 U.S. at 191 (citations omitted); *Walter*, 618 F.2d at 769, 205 USPQ at 409 (noting that the "specific end use recited in the preambles does not save the claims"). This precept is not negatived by the fact that the claimed method may have no substantial practical application except in connection with a particular environment. *See Benson*, 409 U.S. at 71-72. Moreover, this Court's predecessor has held that simply reciting a method in such a manner as to preempt the use of a mathematical procedure in a limited field, as opposed to in a general field, would not convert an unpatentable method to patentable subject matter. *Richman*, 563 F.2d at 1028-29, 195 USPQ at 342.

Because "symantogenic considerations preclude a determination based solely on the words appearing in the claims," this Court's predecessor cautioned that "[i]n the final analysis under § 101, the claimed invention, as a whole, must be evaluated for what it is." *Abele*, 684 F.2d at 907, 214 USPQ at 687 (internal quotes and citation omitted). Given that the '184 patent claims an abstract idea, AT&T cannot succeed

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in fabricating a statutory process by inclusion in the claims of apparatus-like words such as "facilities" or "database." Indeed, the "mere reference to apparatus does not render a claim statutory." *Meyer*, 688 F.2d at 796 n.4, 215 USPQ at 198 n.4 (CCPA 1982) (citing *In re de Castelet*, 562 F.2d 1236, 195 USPQ 439 (CCPA 1977)). Nonstatutory method claims "drafted in illusory apparatus format" cannot escape invalidity under section 101. *See Walter*, 618 F.2d at 769, 205 USPQ at 409.

That the asserted claims fail to restrict the mathematical algorithm contained therein to any physical structure or activity confirms that the claims cover no more than an abstract mathematical concept, rather than a process that performs a concrete and tangible function.

> **b. The Mathematical Algorithm of the Asserted Claims Is Not Substantively Distinguishable from the Nonstatutory Methods in *Warmerdam* and *Grams***

As the language of the asserted claims and the patent specification make clear, the claimed method generates a record containing information indicative of the result of comparing data according to a mathematical operation. AT&T neglects to explain how this differs substantively from the nonstatutory methods at issue in *Warmerdam* and *Grams*. In *Warmerdam*, the claims described "a method of *generating a data structure* which represents the shape of [a] physical object in a position and/or motion control machine as a hierarchy of bubbles," comprising the steps of locating a medial axis of the object and then creating a "hierarchy of bubbles" on the medial axis. 33 F.3d at 1357, 31 USPQ2d at 1756 (emphasis added). The Court concluded that this generating method "describe[s] nothing more than the manipulation of basic mathematical constructs, the paradigmatic 'abstract idea.'" *Id.* at 1360, 31 USPQ2d at 1759. More specifically, the Court determined that the steps of locating a medial axis and creating a bubble hierarchy essentially followed a

mathematical procedure, and that to the extent that any physical measuring was involved, that inherent step constituted a data-gathering step that "was insufficient, standing alone, to impart patentability." *Id.*

Similarly, the claims at issue in *Grams*, related to a method of diagnosing an "abnormal" condition in an individual, which method included the steps of [a] measuring a set of parameters for the individual, [b] producing a "first quantity" value representative of the individual's condition, [c] "comparing the first quantity to a first predetermined value to determine whether the individual's condition is abnormal," [d] producing a "second quantity" based on selective testing and "comparing said second quantity with a second predetermined value to detect a non-significant deviation from a normal condition," and [e] identifying a subset of parameters responsible for the abnormal condition. 888 F.2d at 836-37, 12 USPQ2d at 1825 (emphasis added). Despite the fact that the claimed method generated data as a result of a data-manipulation step of comparing one set of data to another, the Court in *Grams* found nothing patentable about the method under section 101.

Here too, the asserted claims of the '184 patent describe a method of generating a data record that contains a piece of data resulting from a basic mathematical operation in which one set of data is compared to another. In other words, what is claimed is nothing more than an abstract concept. Accordingly, from the standpoint of section 101, the method of the asserted claims is substantively indistinguishable from the nonstatutory methods of *Warmerdam* and *Grams*.

c. The Claimed Method Does Not Involve a Physical Change, Effect, or Result

AT&T fails to recognize that there is nothing physical *per se* about the method covered by the asserted claims. Determining whether a subscriber is PIC'd to a particular long-distance carrier or whether the originating and terminating

subscribers are PIC'd to the same carrier entails nothing more than comparing abstract information according to a mathematical function. Just as there is nothing physical about a person's Social Security number or phone number, there is nothing physical about information indicating the interexchange carrier to which a subscriber is PIC'd. Thus, AT&T's contention that the message record generated by the claimed method is "representative of an individual long-distance phone call" defies logic. AT&T Br. at 1, 47. A message record containing a PIC indicator "cannot constitute a physical change, effect, or result" since there is nothing physical about the PIC indicator itself. *Schrader*, 22 F.3d at 294, 30 USPQ2d at 1458 (stating that because there is nothing physical about bids, a method for grouping such bids is not patentable under section 101).

AT&T seriously overstates its case by straining to analogize the claimed method to the types of physical processes previously deemed to pass muster under section 101. First, the claimed method does not remotely involve the "transformation or conversion of subject matter representative of or constituting *physical activity or objects*"—the hallmark of a statutory process. *Id.* The claimed method simply generates a data indicator by comparing data according to a mathematical operation—it does not physically change the underlying data itself into something else. As such, the claimed method certainly does not physically transform or reduce an article into a different state or thing to the extent contemplated under section 101. *Compare with Diehr* (process for curing molded synthetic rubber); *Alappat* (means for creating a smooth waveform display from an input signal); *Toma* (method of operating a digital computer to translate a source natural language, *e.g.*, Russian, to a target natural language, *e.g.*, English).

Nor does the claimed method manipulate "physical signals" in any sense comparable to those at issue in the cases cited in AT&T's brief. As discussed above,

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the PIC data obtained by the mathematical algorithm of the asserted claims does not constitute a "signal" representative of a physical phenomenon or object. *Compare with Arrhythmia* (process of analyzing electrical signals representative of human heart condition); *In re Taner*, 681 F.2d 787, 214 USPQ 678 (CCPA 1982) (process of analyzing seismic energy waves representative of subsurface formations in the earth); *In re Johnson*, 589 F.2d 1070, 200 USPQ 199 (CCPA 1978) (process of removing noise from seismic signals representative of subterranean structures); *Abele* (steps of mapping X-ray attenuation data as part of an overall physical process of CAT-scan imaging) [16]

To the extent that a proper analogy can be drawn to "physical signal" cases, it must lead to the opposite result urged by AT&T. For example, in *Arrhythmia*, the invention pertained to an electrocardiograph device that manipulated the physical

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[16] AT&T's comparison to claim 6 of the application at issue in *Abele* is problematic at best. According to the court in *Abele*, claim 6 "defines the variables and places the algorithm in a particular relationship to a series of steps in a particular type of process, permitting the algorithm to be applied as a further process step." 684 F.2d at 908, 214 USPQ at 688. That is hardly the case with respect to the asserted claims of the '184 patent, which are directed to a mathematical algorithm that is not part of an overall physical process. If anything, the asserted claims in the '184 patent are akin to the non-statutory claim 5 of *Abele*, which was directed to a mathematical algorithm and "presented no more than the calculation of a number and display of the result, albeit in a particular format." *Id.* at 909, 214 USPQ at 688. For that matter, claim 5 of *Abele* was even more "physical" than the asserted claims of the '184 patent, none of which require the "result" of the mathematical algorithm to be displayed.

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signals of a patient's heart to detect life-threatening conditions. Here, the only comparable physical signal involved in a long-distance phone call is a caller's voice, which is carried on the long-distance network. But the claimed method does not physically manipulate voice-signal data for useful applications, such as analyzing voice data to identify the caller or removing unwanted noise to produce a cleaner sound. Instead, the method merely accesses non-physical or abstract information, *i.e.*, the interexchange carrier(s) to which the subscribers are PIC'd for long-distance phone calls, and manipulates that information according to a mathematical operation to produce more abstract information.[17]

2. A "Data Structure" Is Not *Per Se* Patentable Subject Matter Under Section 101

Recognizing that the method claimed in the '184 patent is drawn neither to a statutory process, machine, manufacture, nor composition of matter, AT&T attempts to create a new category of patentable subject matter known as an "electronic data structure." Specifically, AT&T argues that the message record containing the PIC indicator is a data structure, which, according to AT&T, is a "physical entity." AT&T Br. at 28 & n.2. None of the authorities cited by AT&T, however, supports its argument that the message record (even assuming that it can be considered a data structure) is a "physical entity" for purposes of section 101.

First, the IEEE Dictionary referenced by AT&T, if anything, detracts from rather than supports AT&T's argument because that reference clearly defines "data structure" as a "physical *or logical* relationship" among data elements "designed to

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[17] Conversely, in the context of the invention in *Arrhythmia*, the invention of the '184 patent would be comparable to a method for producing a record for billing the heart patient based on whether he or she subscribes to a particular HMO or insurance plan.

support specific data manipulation functions." Thus, AT&T's own cited authority confirms that a data structure is not necessarily a physical thing or entity. In any event, the asserted claims of the '184 patent do not expressly or implicitly set forth any specific physical relationship among data elements within the message record. The specification also fails to specify such a relationship. JA 60 (col. 3, line 49-col. 4, line 10).

Second, the term "data structure" does not encompass data generated in the abstract, but rather, the structured arrangement of data. In that vein, the asserted claims are distinctly unlike the claims in *In re Lowry*, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994), which related to a computer memory for organizing and managing stored data according to a particular order or arrangement.

In holding that the claims at issue in *Lowry* were directed to "[m]ore than a mere abstraction," the Court determined that

> Lowry does not claim merely the information content of a memory. Lowry's data structures, while including data resident in a database, depend only functionally on information content. While the information content affects the exact sequence of bits stored in accordance with Lowry's data structures, the claims require specific electronic structural elements which impart a physical organization on the information stored in memory . . . .
>
> Indeed, Lowry does not seek to patent the Attributive data model in the abstract. Nor does he seek to patent the content of information resident in a database. Rather, Lowry's data structures impose a physical organization on the data.

Id. at 1583, 32 USPQ2d at 1034.

Thus, rather than describe data manipulation according to a mathematical operation, the claims in *Lowry* dictated precisely how a computer managed information in accordance with a particular physical organization of stored data. *Id.* at 1583-84, 32 USPQ2d at 1034-35. By contrast, the asserted method claims of the '184 patent do not recite any physical organization of data, and instead, cover a

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"message record" in the abstract. A method of generating a message record that fails to define the physical interrelationship or the functional characteristics of the data that resides in the record cannot constitute the type of "data structure" that will impart patentability under section 101. Under AT&T's position, taken to an extreme, the mere recording of the results of an algorithm on a piece of paper would constitute a patentable "data structure."

Even more curious is AT&T's reliance on *Warmerdam*, which holds directly to the contrary of AT&T's arguments. There, the Court held the term "data structure" constitutes "nothing more than another way of describing the manipulation of [abstract] ideas" and does not, as a matter of fact, imply a physical arrangement of the contents of a memory. 33 F.3d at 1362, 31 USPQ2d at 1757. Indeed, the claimed "method for generating a data structure" in *Warmerdam* was deemed to be mathematical in nature in that it "describe[d] nothing more than the manipulation of basic mathematical constructs, the paradigmatic 'abstract idea.'" *Id.* at 1360, 31 USPQ2d at 1759. In that sense, the *Warmerdam* claims are indistinguishable from the asserted claims of the '184 patent. Indeed, like the nonstatutory claims of *Warmerdam*, the asserted claims wholly attempt to patent information within a data record, not a data structure defined by specific structural elements imposing some physical organization on the information residing within the structure. Thus, the fact that the claimed method generates a message record does not alter the conclusion that the claims are directed to nothing more than a mere abstraction.

3.   **The Step of Setting the PIC Indicator in the Message Record Is an Implicit Part of the Mathematical Operation Embodied in the Claimed Method**

The conclusion of invalidity under section 101 is not undermined by the subsequent step of setting the PIC indicator in the message record to indicate the result of the mathematical operation embodied in the asserted claims. This step

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merely involves the entry of data in a manner that does not impart any physical limitation to the claimed method. As this Court has recognized,

> [T]he step of entering data into a "record" is implicit in any application of a mathematical algorithm. The recitation of such a step in a claim involving the solving of a mathematical algorithm merely makes explicit what had been implicit. A conclusion that such activity is sufficient to impart patentability to a claim involving the solving of a mathematical algorithm would exalt form over substance.

Schrader, 22 F.3d at 294, 30 USPQ2d at 1458. Indeed, "[i]f § 101 could be satisfied by the mere recordation of the results of a nonstatutory process on some record medium, even the most unskilled patent draftsman could provide for such a step, thus converting a nonstatutory process into a statutory one with relative ease." *Walter*, 618 F.2d at 770, 205 USPQ at 409.

Thus, because the step of setting the PIC indicator in the message record is an implicit and inherent part of the method claimed in the '184 patent, it does not further limit the method beyond the performance of a mathematical function.

IV. The Additional Limitations of the Claims Do Not Impart Patentability Under Section 101

A. The Step of Looking-Up PICs Is an Antecedent Data-Gathering Step that Carries No Patentable Weight Under Section 101

Claims 4, 13, 19, and 40 recite an additional step of accessing a database that stores the telephone numbers of substantially all the subscribers associated with a particular long-distance carrier—an antecedent step necessary to obtain data for the mathematical operation of the claimed method. This represents a classic "data-gathering" step that does not transform the claimed method into statutory subject matter. The law is settled that "[t]he presence of a physical step in the claim to derive data for the algorithm will not render the claim statutory." *Grams*, 888 F.2d at 840, 12 USPQ2d at 1828.

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The rationale behind the rule that antecedent data-gathering steps do not render a claim statutory was aptly explained by this Court's predecessor:

> No mathematical equation can be used, as a practical matter, without establishing and substituting values for the variables expressed therein. Substitution of values dictated by the formula has thus been viewed as a form of mathematical step. If the steps of gathering and substituting values were alone sufficient, every mathematical equation, formula, or algorithm having any practical use would be per se subject to patenting as a "process" under § 101.

In re Sarkar, 588 F.2d 1330, 1335, 200 USPQ 132, 139 (CCPA 1978). Thus, "the addition of the old and necessary antecedent steps of establishing values for the variables in the equation cannot convert an unpatentable method to patentable subject matter." *Grams*, 888 F.2d at 839, 12 USPQ2d at 1828 (quoting *Christensen*, 478 F.2d at 1394, 178 USPQ at 37-38). And even where the antecedent data-gathering steps are novel and nonobvious, their recitation in a combination with a mathematical computing step is "legally insufficient to give rise to a patentable claim under § 101." *Arshal*, 621 F.2d at 430, 208 USPQ at 406 (internal quotes and citations omitted).

The court's analysis in *In re Richman*, 563 F.2d 1026, 195 USPQ 340 (CCPA 1977), is instructive on this point. There, the method at issue involved calculating (according to a mathematical formula) an average "boresight correction angle" and the "average vertical velocity angle" for an airborne radar. Importantly, the method required obtaining values for certain parameters necessary for solution of the mathematical operation embodied in the claims. These parameters included a plurality of "signal sets" from at least two points in a flight path. In holding the claimed method unpatentable under section 101, the court concluded that the antecedent steps of obtaining the signal sets did not suffice to render the claimed invention patentable as a whole because "they merely determine values for the variables used in the mathematical formulae used in making the calculations." *Id.* at 1030, 195 USPQ at 343.

In the present case, the antecedent step of looking up in a database the interexchange carrier(s) to which the originating and terminating subscribers are PIC'd for purposes of conducting a mathematical operation is indistinguishable for purposes of the section 101 inquiry from the step of acquiring signal sets in *Richman*, the step of requiring the performance of clinical laboratory tests on an individual to obtain data for the test parameters in *Grams*, or the step of measuring the medial axis of an object to supply information for the generation of the bubble hierarchy in *Warmerdam*. The look-up step of the asserted claims, which is dictated by the mathematical algorithm recited in the claims, essentially provides the values "p" and "q" for the Boolean multiplication operation "p ∧ q," where p is the long-distance carrier to which the terminating subscriber is PIC'd, and q is the long-distance carrier to which the originating subscriber is PIC'd (Figure 3) or is a particular predetermined long-distance carrier (Figure 7). By merely providing data for use in a mathematical operation, this step is insufficient to convert the claimed method into statutory subject matter.

B.   The Step of "Billing" Is Directed to a Post-Solution Activity That Does Not Transform an Abstract Idea into a Statutory Process

Claims 6, 15, and 21 recite a step of "billing" that is a function of the value of the PIC indicator in the message record for each one of the calls. But that step cannot in and of itself impart patentability under section 101. First, there is nothing physical *per se* about the post-solution activity of billing calls. Again, the claims in question are not confined by any physical limitation for carrying out the step of billing. Thus, the overall process of generating a PIC indicator remains firmly within the realm of the abstract.

Second, even if the billing step could be considered a physical activity, that would not render the claims valid. Where, as here, a mathematical algorithm is

presented and solved by the claimed invention, and is not applied in any manner to physical elements or process steps, "no amount of post-solution activity will render the claim statutory." *Walter*, 618 F.2d at 767, 205 USPQ at 407. Indeed, the Supreme Court has made clear that patentability under section 101 is unattainable where the only "physical" aspect of the method lies in the effect or result achieved by the method. *Flook*, 437 U.S. at 590; *see also Diehr*, 450 U.S. at 191 (stating that "postsolution activity will not transform an unpatentable principle into a patentable process."

In *Flook*, the claims were directed to a method for updating the value of an alarm limit on a process variable involved in the catalytic chemical conversion of hydrocarbons. The steps of this alarm-updating method included:

> (1) Determining the present value of said process variable, said present value being defined as PVL;
>
> (2) Determining a new alarm base B_1 using the following equation:
> $$B_1 = Bo(1.0-F) + PVL(F)$$
> where F is a predetermined number greater than zero and less than 1.0;
>
> (3) Determining an updated alarm limit which is defined as B_1+K; *and thereafter*
>
> (4) *Adjusting said alarm limit to said updated alarm limit value.*

Id. at 597 (emphasis added).

The applicant argued that the final step of the method recited specific physical activity—the adjustment of the alarm limit to the figure computed according to the formula (step (4))—sufficient to bring the claim under section 101. The Supreme Court, however, disagreed:

> The notion that post-solution activity, no matter how conventional or obvious in itself, can transform an unpatentable principle into a patentable process exalts form over substance. A competent draftsman could attach some form of post-solution activity to almost any mathematical formula; the Pythagorean theorem would not have been patentable, or partially patentable, because a patent application

> contained a final step indicating that the formula, when solved, could
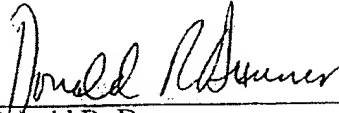> be usefully applied to existing surveying techniques.

Id. at 590.

Thus, it is of no import for purposes of the section 101 inquiry that certain of the dependent claims recite "a further step of billing" that tags on the mathematical algorithms of the independent claims. Patentability under section 101 cannot and does not turn on the legal fiction created by AT&T in drafting the asserted claims. "To [hold] otherwise would make the determination of patentable subject matter depend simply on the draftsman's skill which would ill serve the principles underlying the prohibition against patents for ideas." *Arshal,* 621 F.2d at 428, 208 USPQ at 404; *see also Diehr,* 450 U.S. at 191-92 (cautioning that placing patentable significance on post-solution activity "would allow a competent draftsman to evade the recognized limitations on the type of subject matter eligible for patent protection").

CONCLUSION

The district court, in view of the scope of the invention as claimed in the '184 patent, was correct in entering judgment of invalidity under 35 U.S.C. § 101. The asserted claims fail to define an invention that is entitled to patent protection under section 101 and are, therefore, invalid as a matter of law. Because the district court did not err in its interpretation of section 101 and its application to the undisputed facts, the grant of summary judgment of invalidity should be affirmed.

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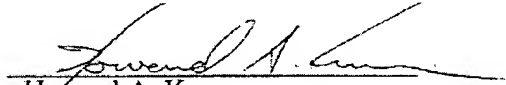Excel Communications Marketing, Inc., and
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09/350,875	July 9, 1999	Gerald J. O'Connor	22927	3627

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Title: **MULTI-TIER PRICING OF INDIVIDUAL PRODUCTS BASED ON VOLUME DISCOUNTS**

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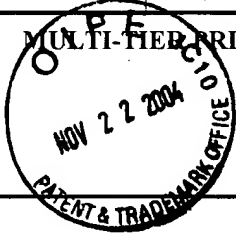
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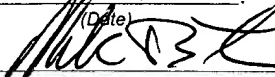**(203) 461-7300/fax**
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